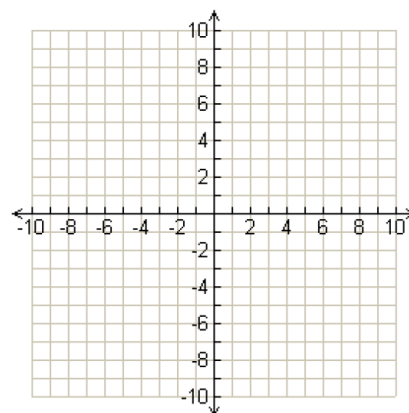


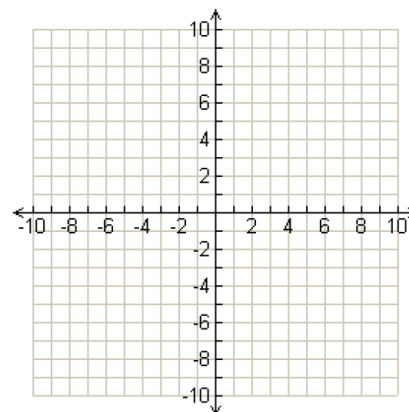
Midpoint and Distance and Slope 6.1 6.2 Worksheet

Part 1: Graphing

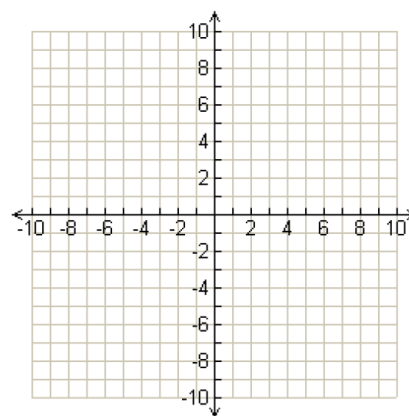
1) Graph the points A (1, 8) and B (9, 6). Find the midpoint of \overline{AB} . Find the length of \overline{AB} .



2) Graph the points C (2, -4) and D (6, 2). Find the midpoint of \overline{CD} . Find the length of \overline{CD} .



3) Graph the points E (-10, -9) and F (4, -3). Find the midpoint of \overline{EF} . Find the length of \overline{EF} .



Part 2: Midpoint Using Formula Only

Find the midpoint for each line segment using the formula (no graphing needed). Show the formula and all work.

4) G (6, 5) and H (9, 2)

5) I (1, 1) and J (-3, -3)

6) Given the midpoint of segment KL is M (1, -1) and L (8, -7). What are the coordinates of the other endpoint K?

Part 3: Distance Using Formula Only

Find the distance between each set of points. Show the formula and all work.

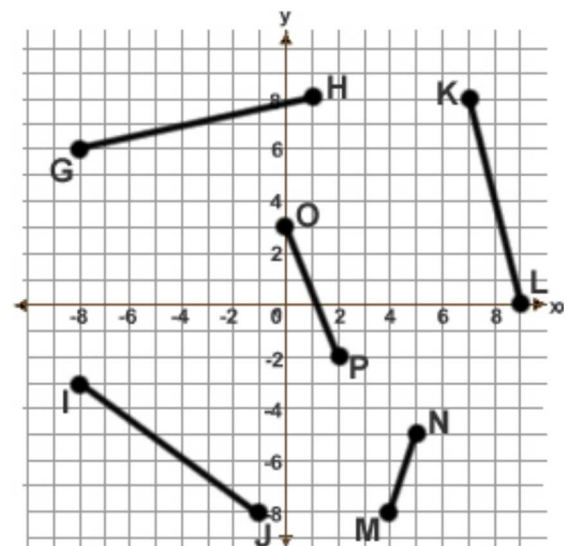
7) (0, 0) and (4, 3)

8) (3, -3) and (2, 7)

9) Determine the coordinates of the points needed. Then find the distance of each line segment.

a) GH G (,) H (,)

b) KL K (,) L (,)



Part 4: Putting it All Together

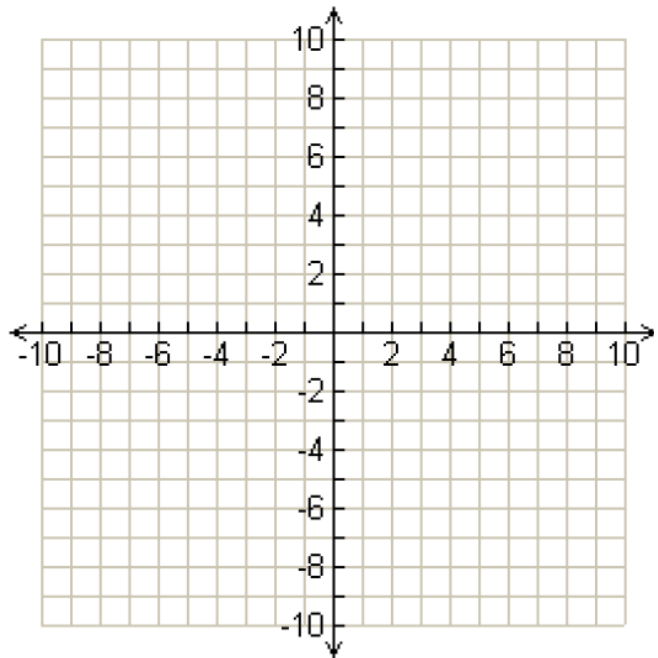
10) Triangle ABC has coordinates A (3, 9), B (5,1) and C (9, 5). D is the midpoint of AB and E is the midpoint of AC.

- a) Graph the points A, B, and C (make sure you label them). Find the coordinates of points D and E. Show all work.

D =

E =

- b) Plot points D and point E on the graph and label.
- c) Find the length of BC. Show all work.
- d) Find the **length of DE**. Show all work.



Problems

11) Find x and y if (2, 5) is the midpoint of points (x, y) and (-5, 6).

12) Show that the triangle that has (0, 1), (2, 3) and (2, -1) as vertices is right isosceles.

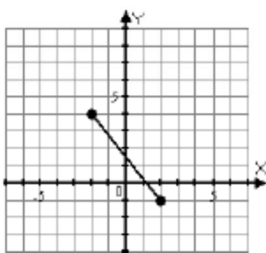
13) Find the length of the hypotenuse of the right triangle whose vertices are given by the points (-2, 1), (1, 1) and (1, 2).

14) Find the point (0, y) that is equidistant from (4, -9) and (0, -2).

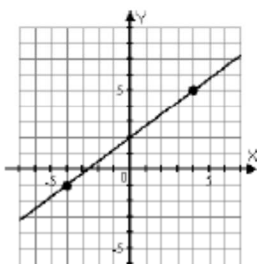
SLOPE

15) Find slopes of the following (use $\frac{\text{rise}}{\text{run}}$)

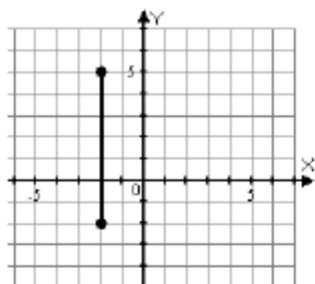
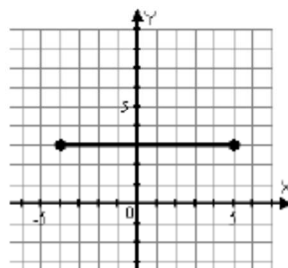
a.



b.



c.



The slope of graph a should be _____ because it's rising to the left.

The slope of graph b should be _____ because it's rising to the right.

The slope of graph c should be _____ because it's horizontal.

The slope of graph d should be _____ because it's vertical.

16) The total amount that Thomas earns in a day from his summer job at a gas station is dependent on the number of hours he works. If he works for 8 hours, he earns \$52.

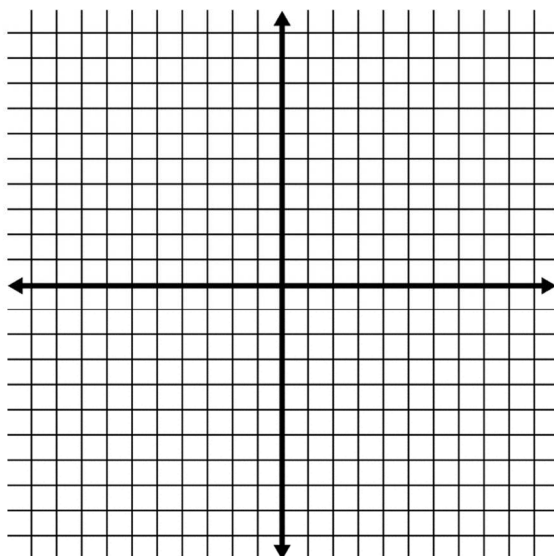
a) Create a table of values for this function (hours vs earnings).

b) What is the slope of the line? What does the slope represent?

c) If Tom worked for 12 hours in a day, what amount would he earn?

17) You are building a wheelchair ramp that leads to a doorway 22 inches above the ground. The slope of the ramp must be $\frac{1}{12}$. Find the length of ground in inches that the ramp covers. (Can convert answer to feet by dividing by 12, as there are 12 inches in a foot.)

18)



- Given $A(0, -8)$, $B(5, 9)$, $C(7, -6)$, $D(-8, 6)$, $E(3, 0)$, $F(-4, -2)$, $G(-6, 2)$, label the points on the graph.
- Find the slope of \overline{BE} and \overline{EG} . What does the slope indicate about these lines?
- Find the slope of \overline{FE} and \overline{AC} . What does the slope indicate about these lines?

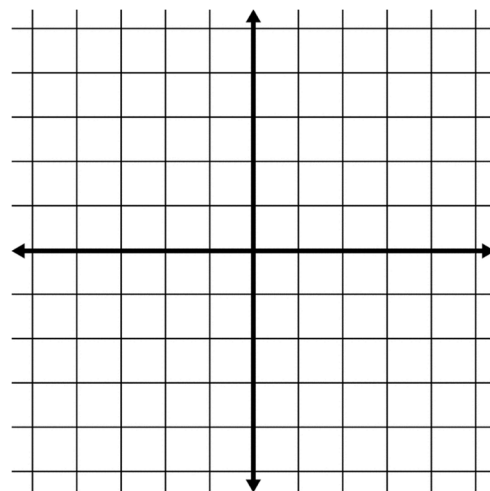
19) Graph lines with slope of: a) $-\frac{3}{4}$ b) $\frac{2}{3}$ c) 0.5

Which one(s) rise to the right? _____

How do you know? _____

Which one(s) rise to the left? _____

How do you know? _____



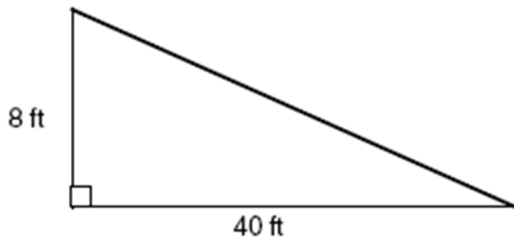
20) Are the three points $A(2, 3)$, $B(5, 6)$ and $C(0, -2)$ collinear (all on same line)?

21a) What is the slope of the line $y = 9$?

21b) What is the slope of the line $x = -5$?

22) Find x if the line through the points $(6, x)$ and $(1, -5)$ has a slope of 2.

23) Use the rise and run measurements in the figure below to estimate the slope percent.



24) A hill has a slope of 8 percent. The height of the hill is 15 feet. What is the horizontal distance?

25) Aurena is installing a pipe for drainage. The system requires a drop of 1.5 cm for every 2.5 cm of horizontal distance.

a) What is the slope of the pipe?

b) How much drop will she need if the horizontal distance is 12m?

26a) Write the slope of a line parallel to the line $y = \frac{-2}{3}x + 4$ _____

b) Write the slope of a line perpendicular to the line $y = \frac{-2}{3}x + 4$: _____

c) What is the slope of the line perpendicular to the line $y = -2$? _____

27) If you were given four points and were asked to find if a quadrilateral were a rectangle, write out the steps of your process to answer the question.
